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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,363	11/07/2001	Jamelyn D. Holladay	13020G	4377

7590

02/23/2005

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EXAMINER

COCKS, JOSIAH C

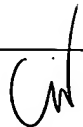
ART UNIT

PAPER NUMBER

3749

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/008,363	Applicant(s) HOLLADAY ET AL. 	
	Examiner Josiah Cocks	Art Unit 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on amendment filed 12/6/2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 and 63-100 is/are pending in the application.
- 4a) Of the above claim(s) 10-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 16-23 and 63-100 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Receipt of applicant's amendment filed 12/06/2004 is acknowledged.

### ***Election/Restrictions***

2. Applicant elected the invention specified in Group I in the Restriction Requirement mailed 3/24/2004, which included claims 1-9 and 16-23 drawn to a microcombustor. Applicant argued that claims 10-15 should also be examined as these claims are also drawn to a microcombustor. In the prior Office Action the examiner noted that these groups claims were originally characterized as being unrelated inventions but asserted that these claims were more accurately characterized as two distinct species of microcombustor. The examiner treated applicant's election of the microcombustor of claims 1-9 and 16-23 as an election of the species of microcombustor set forth in these claims. The examiner reasserts that the microcombustor set forth in claims 1-9 and 16-23 is properly characterized as a patentably distinct species of microcombustor from that set forth in claims 10-15. Applicant has cancelled claims 24-62 drawn to non-elected inventions. However, claims 10-15 remain in the case. Applicant acknowledges that the microcombustor of claims 10-15 is patentably distinct from that of claims 1-9 and 16-23. Claims 10-15 are considered to be drawn to a non-elected invention and have not been further treated on the merits. Applicant should cancel these claims in reply to this Office Action.

***Double Patenting***

3. Applicant is advised that should claim 7 be found allowable, claim 82 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 91 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 91 recites the limitation "the catalyst in the reformation channel" in lines 1-2.

There is insufficient antecedent basis for this limitation in the claim. As best can be determined and for the purpose of an examination on the merits it appears applicant intended claim 91 to be dependent upon claim 18.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 1-6, 9, 16, 17, 19, 20, 23, 63, 81, and 82 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 99/00186 ("the '186 patent").

The '186 patent discloses in Figures 1-6 a microcombustor and steam reformer substantially as described in applicant's claims 1-6, 9, 16, 17, 19, 20, 23, 63, 81, and 82. In particular, in Figure 2 a first section comprising a combustion fuel channel with inlet (104) and outlet (106), and a second section next to the first section and including a combustion chamber (108) with an inlet in communication with an outlet (112) that is capable of evacuating combustion exhaust products. The combustion fuel channel and the exhaust channel are disposed on a same side with respect to the combustion chamber, so as to form a first heat exchanger, and are in parallel planes (see Fig. 2a, col. 3, lines 18-42, and col. 3, line 62 through col. 4, line 16). The '186 patent also discloses that a catalyst (300) may be included in the combustion chamber (see col. 4, line 63 through col. 5, line 23). The microcombustor is disclosed as being used with a fuel reformer (410) and a fuel cell (402) (see col. 5, lines 24-41) and may include a working fluid/reformer fuel inlet (120) and multiple heat exchange chambers with multiple heat transfer layers (see Figs. 2c and 2d). The '186 patent further shows in Figure 3a a first plate (111) separating the first and second sections and a second plate (unnumbered) located between the combustion chamber (108) and the catalyst (300). As the catalyst and plate are separate structures made of different materials it would be inherent that a space would exist between them.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 64-66, 70-75, and 77-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/00186 ("the '186 patent") as applied to the claims above.

In regard to these claims and the limitations relating to the characteristics and type of the catalyst, the examiner considers that it would be obvious to a person of ordinary skill in the art to modify the catalyst of the '186 patent to have the characteristics recited in applicant's claims as these characteristics would be obtainable through routine experimentation by optimizing the

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prior art catalysts to achieve proper catalytic combustion. Accordingly, these claims are not regarded as patentably distinct.

11. Claims 7, 8, 21, 22, 83, 84, 67-69, 76, 80, and 83-87 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '186 patent as applied to the claims above and further in view of U.S. Patent No. 4,876,162 to McElroy ("McElroy") (cited in prior Office Action).

The '186 patent discloses all the limitations of claims 7, 8, 21, 22, 83, 84, 68, 69, 76, 80, and 83-87 except for a liquid evacuation system comprising a wick.

McElroy teaches a fuel cell in the same field of endeavor as the '186 patent wherein the fuel cell of McElroy includes a water removal system that includes the use of a wick structure/capillary tube (26) located in an exhaust channel (20).

Therefore, in regard to claims 7, 8, 21, 22, 83, 84, 68, 69, 76, 80, and 83-87, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the microcombustor of the '186 patent to incorporate the wick of Sanderson as for the desirable purpose of removing excess water from a fuel cell system (see McElroy, col. 2, lines 40-48).

12. Claims 18, 67, and 88-100 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '186 patent as applied to the claims above in view of U.S. Patent No. 5,858,314 to Hsu et al. ("Hsu").

The '186 patent teaches all the limitations of claims 18, 67, and 88-100 except for a catalyst in the reformer channel.

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Hsu teaches a reformer that is considered analogous to that of the '186 patent. In Hsu a combustion catalyst (92) and a reforming catalyst (90) are present.

Therefore, in regard to claims 18, 67, and 88-100, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the reformer of the '186 patent to incorporate a reforming catalyst as taught in Hsu as such catalysts desirably serve to maximize the production of product gas (see Hsu, col. 11, lines 17-20).

### *Conclusion*

13. This action is made non-final. A THREE (3) MONTH shortened statutory period for reply has been set. Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Josiah Cocks whose telephone number is (571) 272-4874. The examiner can normally be reached on weekdays from 8:00 AM to 5:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus, can be reached at (571) 272-4877. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal/pair>. Any questions on access to the Private PAIR system should be directed to the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

jcc  
February 17, 2005

  
JOSIAH COCKS  
PRIMARY EXAMINER  
ART UNIT 3749